



universität  
**uulm**

**Physikalisches Kolloquium**  
Einladung

**Physics Colloquium**  
Invitation

**Monday, 23 June 2025**

Lecture Hall N24/H13, at 16:15 hrs

Coffee and cookies will be served in front of the lecture hall from 16:00 hrs

## **Towards quantum experiments with micrometer-sized levitated superconducting particles**

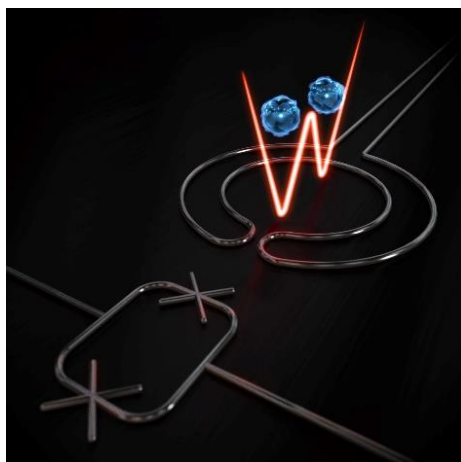
### **Prof. Witlef Wieczorek**

Chalmers University of Technology, Göteborg, Sweden,  
Quantum Technology Laboratory

 <https://www.chalmers.se/en/persons/witlef/>



Quantum states of massive objects have fascinated since the inception of quantum mechanics. Nowadays molecules of thousands of atoms and mechanical resonators weighing picograms to micrograms can be brought into quantum states. This capability enables tests of the validity of quantum mechanics and provides new avenues for quantum sensing technologies. To explore and utilize the quantum behavior of a massive object requires exceptional isolation from its environment combined with precise control over its quantum state. I will present our experiments that target achieving quantum control over the motion of objects with masses larger than  $10^{12}$  atomic mass units. These experiments are based on magnetically levitating a superconducting microparticle in cryogenic vacuum at millikelvin temperatures.



Host: Prof. Benjamin Stickler, Institute of Complex Quantum Systems

Organisation: Prof. Dr. Jens Michaelis, Institute of Biophysics, jens.michaelis@uni-ulm.de, +49-731-50-23050